

## INTEGRAL CURB, COMBINED CURB AND GUTTER BITUMINOUS CURBING AND HEADER CURBING

### 609.01. DESCRIPTION.

This work shall consist of the construction of integral curb, combined curb and gutter, header curbing, or bituminous curbing, in accordance with these Specifications and in reasonably close conformity with the lines, grades, and dimensions shown on the Plans or established by the Engineer.

## 609.02 . MATERIALS.

Concrete for integral curb, combined curb and gutter, or header curbing shall be Class A concrete meeting the requirement of Section 701.

Asphalt concrete used for asphalt curbing shall meet the requirements of Subsection 708.04 Type B or C mix, except that the asphalt content shall be approximately 1.15 times the content required by the job-mix formula in the basic mix.

Sealing materials for concrete curbs shall conform to Subsection 701.08. Materials for sealing new concrete pavements and for most joint rehabilitation applications shall be in accordance with Subsection 701.08(f); materials for sealing joints in integral concrete curb and combined curb and gutter shall be in accordance with Subsection 701.08(d), unless otherwise approved by the Engineer.

### 609.03. EQUIPMENT.

If a curb machine is used, it shall be capable of extruding a uniformly textured material to the shape and density specified and placing it in reasonably close conformity to the established line and grade.

## 609.04. CONSTRUCTION METHODS.

- (a) **Excavation.** Excavate to the required depth, and compact the base upon which the curb is to be set to a firm, even surface. Remove all soft and unsuitable material, and replace it with suitable material which is then thoroughly compacted.
- (b) **Forms.** Make forms from wood, metal, or other suitable material, taking care that they are straight, free from warp, and of such construction that there will be no misalignment of grade. All forms shall extend for the entire depth of the curb or curb and gutter and shall be braced and secured sufficiently so that no deflection from alignment or grade will occur during the placing of the concrete or asphalt.

Shimming to the bottom of the forms is not to exceed 2 inches (50 mm) in built-up thickness for special curb sections to provide the specified thickness. The material and method of fastening the built-up section to the form shall be approved by the Engineer prior to use.

Clean and oil or wet forms before placing the concrete. Make them sufficiently tight to prevent leakage.

- (c) **Placing Concrete.** Check forms, and place and vibrate concrete in accordance with Subsection 414.04.

- (d) **Surface Finish.** As soon as the curb concrete has set sufficiently to retain its shape without support, obtain the final surface finish by uniformly brushing the surface in a manner approved by the Engineer.

Neatly edge all formed concrete joints—including edges at expansion and contraction joints or planes of weakness joints—to the required radius.

- (e) **Joints.** Make all joints in curbs perpendicular to the subgrade at right angles to the longitudinal axis of the curb. Construct expansion and contraction joints at the same location as similar joints in the paving slab.

For expansion joints, use premolded expansion joint filler of the thickness—and placed at the locations—shown on the Plans or as approved by the Engineer. Place curb and gutter joints opposite the joints in the pavement meeting requirements of section 701.08.

When contraction joints in curb and gutter are used in conjunction with asphalt surfacing, saw them as specified in Subsection 609.04(h) and seal them with the same material specified for sealing expansion joints.

- (f) **Curb Openings.** Where curb is to be omitted for driveways, or other cause, either all or only the top portion of the separate curb may be omitted as shown on the Plans or approved. In general, only the curb will be left off of combined curb and gutter. Where the bottom portion of separate curb or the gutter of combined curb and gutter is left in place, make the concrete slightly higher at the back of the curb line than at the front, as shown on the Plans or as approved. Such curb shall be considered as regular curb for measurement and payment.
- (g) **Curing.** Cure concrete curbs or combined curb and gutter in accordance with Section 414.
- (h) **Extruded Method.** When the extruded method is used to construct combined curb and gutter, operate the extrusion machine on a string or wire line, with the rails or forms set at a uniform depth below the predetermined finished top of curb grade.

Feed concrete to the machine uniformly, and make it of such consistency that after extrusion the concrete will maintain the shape of the section without support. The finished curb or curb and gutter shall present a well-compacted mass; its surface shall be free from voids and honeycomb and reasonably true to established shape, line, and grade. When additional surface finishing is required, perform it immediately after extrusion. Tolerances shall meet the requirements of Subsection 414.04(t).

Construct joints at the same locations as required when form construction is being used. Make weakened joints, spaced at 20 foot (6 meter) intervals, by sawing, unless other methods are approved by the Engineer.

- (i) **Bituminous Curbing.** The Engineer may permit the construction of curbing by means other than the automatic curber or machine when short sections or sections with short radii are required, or for such other reasons as approved by the Engineer. The resulting curbing shall conform in all respects to the curbing produced by the use of the machine.

Construction methods shall be in accordance with Subsection 411.04, paragraphs (a) to (g) inclusive, except as amended by the next two paragraphs.

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AND HEADER CURBING**

**609.04**

Before placing the bituminous mixture, establish one edge of the bituminous curb by a string or wire line. Lay the bituminous mixture within the lowest practical temperature range which is found to give the best results with the particular mix and machine being used for the job. Once the optimum temperature is established for a given job, do not vary that temperature by more than 20°F (11°C).

- (j) **Backfill.** Backfill the back side of the curbs with approved earth, and thoroughly compact it in layers not exceeding 6 inches (150 mm) in depth and neatly graded as shown on the Plans or as approved by the Engineer. Take care not to damage the concrete in placing or compacting the backfill; any damage will be repaired at no additional charge.

**609.05. METHOD OF MEASUREMENT.**

Curbing will be measured by the linear foot (meter) along the front face of the curb for (A) concrete curb, (B) combined curb and gutter, (C) concrete header curbing, and (D) bituminous curbing.

**609.06. BASIS OF PAYMENT.**

The accepted quantities, measured as provided above, will be paid for at the contract unit price as follows:

- |     |                                |                     |
|-----|--------------------------------|---------------------|
| (A) | CONCRETE CURB .....            | LINEAR FOOT (METER) |
| (B) | COMBINED CURB AND GUTTER ..... | LINEAR FOOT (METER) |
| (C) | CONCRETE HEADER CURBING .....  | LINEAR FOOT (METER) |
| (D) | BITUMINOUS CURBING .....       | LINEAR FOOT (METER) |

Such payment shall be full compensation for furnishing all materials, equipment, labor, and incidentals to complete the work as specified.

**SECTION 610**

**CONCRETE OR BITUMINOUS SIDEWALKS, DRIVEWAYS,  
AND DIVIDING STRIP**

**610.01. DESCRIPTION.**

This work shall consist of the construction of bituminous or concrete sidewalks, driveways, and dividing strips in accordance with these Specifications and in reasonably close conformity with the lines, grades, and typical cross sections shown on the Plans or established by the Engineer.

**610.02. MATERIALS.**

Material shall meet the requirements specified in the following Subsections of Section 700 - Materials:

Bituminous Mixture	708.04
Portland Cement Concrete, Class A	701.01